

ABSTRACT

An inexpensive mechanical fuse having a high fatigue limit ratio and high rupture reliability, and superior in forming performance, and a method of manufacturing the same are presented. The mechanical fuse is composed of Fe-based sintered alloy, and comprises an inner rim 2 fixed to one power transmission shaft, an outer rim 3 fixed to the other power transmission shaft, and plural arms 4 for linking the inner rim 2 and outer rim 3, which are formed integrally. The arms 4 include rupture portions 6 which are ruptured when exposed to an overload torque. By treating in steam, an iron oxide phase is formed in the surface layer and pore inner wall. The iron oxide phase is effective to form round pores and lower the notch sensitivity. As a result, the fatigue strength and fatigue limit ratio are enhanced.

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